$2.50

Simpson

INSTRUMENTS THAT STAY ACCURATE

OPERATOR'S MANUAL

MODEL 2750
STRIP CHART RECORDER

WARNING

For safe usage, it is essential that the operator read this manual carefully before using the instrument for any measurements.

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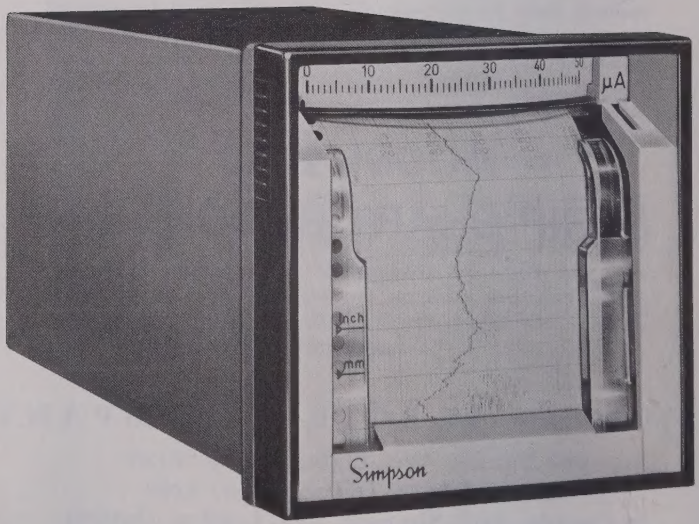

Figure 1-1. Model 2750 Strip Chart Recorder

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WARNING

This Instrument is designed to prevent accidental shock to the operator when properly used. However, no engineering design can render safe an instrument which is used carelessly. Therefore, this manual must be read carefully and completely prior to making any measurements. Failure to follow directions can result in a serious or fatal accident.

SHOCK HAZARD: As defined in American National Standard, C39.5, Safety Requirements for Electrical & Electronic Measuring & Controlling Instrumentation, a shock hazard shall be considered to exist at any part involving a potential in excess of 30 volts r.m.s. (sinewave) or 42.4 VDC or peak, and where a leakage current from that part to ground exceeds 0.5 milliampere, when measured with an appropriate measuring instrument defined in Section 11.6.1 of ANSI C39.5.

NOTE: The proper measuring instrument for the measurement of leakage current consists essentially of a network of a 1500 ohm non-inductive resistor shunted by a 0.15 microfarad capacitor connected between the terminals of the measuring instrument. The leakage current is that portion of the current that flows through the resistor. The Simpson Model 229-Series 2 AC Leakage Current Tester meets the ANSI C39.5 requirements for the measurement of AC leakage current and can be used for this purpose. To measure DC leakage current, connect a 1500 ohm non-inductive resistor in series with a Simpson 0-500 DC microammeter and use this as the measuring instrument.

SECTION I

INTRODUCTION

1.1 GENERAL

The Simpson Model 2750 (hereinafter referred to as Model 2750 or the Instrument), is a clamp-type, low-speed, strip chart recorder which provides a recording by making sequential impressions on pressure-sensitive chart paper. It uses a rugged, taut-band suspension movement to indicate the measured parameter. Every 3 or 6 seconds, the self-contained synchronous motor activates a bar which clamps the movement pointer momentarily against the paper. This compresses the wax film on the paper, and produces a black dot. Successive black dots produce an apparently continuous line on the paper. The problems often encountered with recording pens and ink thereby have been eliminated. The meter movement is free to follow changes in the input sensing element at all times other than the momentary clamping period.

Careful attention has been devoted to the functional aspects of the Instrument to simplify its basic operation. The following features are typical examples:

a. The front window is removable to allow notations that can be made directly on the chart paper. It also provides access to the chart drive mechanism.

b. Changes in chart speed, replacement of chart rolls and operation of the ON-OFF switch are performed from the front of the recorder (after removing the front window).

c. A plastic cover with an opening at the bottom, is available as an option for applications where it is desired to "feed out" the paper rather than store it on the take-up spool.

1.1.1 Dual Channel Recorder

To monitor simultaneously two separate inputs and record on the full width of the chart paper, the Dual Channel Recorder uses a switching device that alternately connects the instrument movement to one of the two input channels. Different time intervals are

synchronized with the clamping bar mechanism, using a dot sequence of 6 seconds.

The identification between input channels is made by the number of dot impressions. Five dots are used for input channel "B" and one dot is used for input channel "A". The sequence of 5 dots for input channel "B" will produce a dark heavy line and a single dot for channel "A" will produce a light fine line; thereby the two lines are easy to identify.

1.2 ACCESSORIES AND SUPPLIES

All accessories and supplies required for the operation of the Instrument are furnished with the Instrument. Refer to Table 7.1. For other available accessories and replacement parts, refer to Tables 7.2 and 7.3.

1.3 TECHNICAL DATA

Table 1-1 lists the technical specifications for the Model 2750 Strip Chart Recorder.

Table 1-1. Technical Data

1. Meter Movement:

Taut-Band Suspension;
Response Time <2 Sec.

2. Measuring Ranges:

DC Current	10 μA to 10A
DC Voltage	.4 mV to 500V
AC Current	250 μA to 5A
AC Voltage	10V to 500V

Recording Accuracy 1.5%

Segmental Voltmeter

True RMS	100V to 130V
AC (average reading)	100V to 130V

Recording Accuracy 1%

3. ***Rated Circuit to Ground Voltage of the Measuring Circuit:**
   500 RMS (sinewave); 707 VDC or peak.

4. **Recording Trace:**

Single Channel:	1 impression every 3 or 6 seconds
Dual Channel:	1 impression every 6 seconds on channel B, and every 30 seconds on channel A.

5. **Chart Paper:** Pressure sensitive

Length:	15.5 meters (50 feet)
Width:	65 mm (2.56 inches)
Recording Width:	59 mm (2.32 inches)
Markings:	Depends on chart paper selected. Refer to 7.3, item 5, and paragraph 4.3

6. **Chart Gear Speeds:** 20 mm/hour is standard. Gears for 30, 60 and 100 mm/hour are available (refer to 7.2, item 4). The gear change lever on the chart mechanism allows the chart speed to be multiplied by 6.

7. **Operating Temperature Range:** −10° to +40°C

8. **Reference Conditions:**

Temperature:	+23°C ± 1°C
Relative Humidity:	30 to 60%

9. **Standard Power Input** 100-130V, 60 Hz, 2W

10. **Power Input Options:** 220V ± 10%, 60 Hz

11. **Frequency Option**

AC Frequency	50 Hz
VDC Options	3,6,12,24,48 Volts

*Defined by American National Standard C39.5 (April 1974), as "the specified voltage with respect to ground which may be safely and continuously applied to the circuits of the Instrument".

12. Recorder Scale:	2-5/8" wide (66.68mm)
13. Weight:	4.5 pounds (2.0 Kg)
14. Dimensions:	3.7" high X 3.73" wide X 9.2" deep (93.98 X 94.74 X 233.68 mm)

SECTION II

INSTALLATION

2.1 UNPACKING AND INSPECTION

2.1.1 Examine the shipping carton for obvious signs of damage prior to unpacking. If shipping carton is in good condition, then unpack and inspect the Instrument for possible damage incurred during shipment. If damage is noted, notify the carrier and supplier and do not attempt further use of the Instrument. If Instrument appears to be in good condition, read Operator's Manual in its entirety. Become familiar with the Instrument as instructed in the manual, then proceed to check the electrical performance as soon as possible. Also check that all accessories are included (refer to Table 7-1).

2.1.2 Save the shipping carton and packing materials for future storing or shipping of the Instrument.

2.2 POWER REQUIREMENTS

WARNING

Insure that the ground pin of the power plug is connected securely to an earth (power line) ground. Use a 3-wire grounded outlet which conforms to the latest electrical code.

The standard version Model 2750 is designed to be operated on 100-130 volts AC, 60 Hz power (see Table 1-1). Other optional

voltages are available. Check the rear panel label to determine the correct input power source requirement.

2.3 INSTALLATION

2.3.1 The Model 2750 is designed to be used with the recorder scale in a vertical position (front cover is vertical). This position insures functioning of the recorder mechanism at maximum accuracy.

2.3.2 The unit may be set on a flat surface or panel mounted, depending on requirements. If it is to be panel mounted, refer to Figure 2-1 for panel cut-out dimensions and other details.

CAUTION

Be careful not to twist the case when installing it in the panel. Inadvertent twisting can cause the meter clamping bar to bind.

2.3.3 For portable use, a carrying handle is available (refer to Figure 2-2). The carrying handle attaches to the recorder case, which also is equipped with fold-out legs to permit easier viewing.

NOTE: For best accuracy, fold the legs under, so the scale will be vertical.

2.3.4 For recording without a take-up reel, a clear molded acrylic cover (see Table 7-2, item 2) is available. This cover has a snap-out section at the bottom which provides an opening for exit of the chart paper. Thereby, the paper can be torn off easily, without interrupting the recording process.

CAUTION

Do not operate the recorder without cover in place.

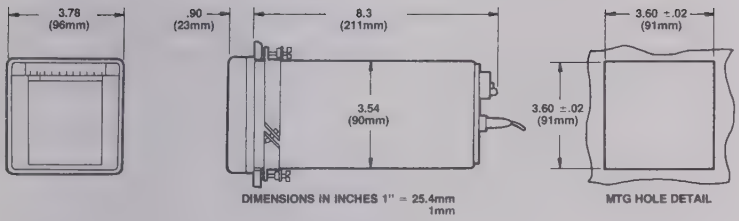

Figure 2-1. Dimensional Diagram

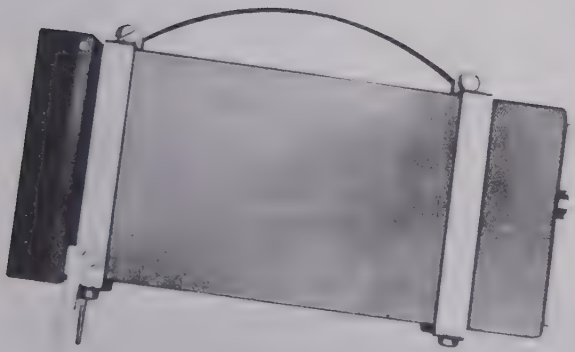

Figure 2-2. Model 2750 with Carrying Handle

SECTION III

CONTROLS, CONNECTORS AND INDICATORS

3.1 FRONT AND REAR PANEL DESCRIPTIONS

All operating controls, connectors and indicators are described in Table 3-1. Become thoroughly familiar with each prior to operating the recorder for the first time.

Table 3-1. Controls, Connectors and Indicators

NOTE: Item numbers in Table 3-1 correspond with call-outs in Figure 3-1.

ITEM	DESCRIPTION
1. Pointer and Scale	The pointer indicates on the recorder scale the value of the INPUT SIGNAL.
2. Zero Adjust Lever	This lever is coupled mechanically to the meter movement zero setting mechanism, and used to set the meter pointer at mechanical zero (4.3).
3. On-Off Control Lever	This is a two-position control lever, which turns the recorder mechanism on and off. The position selected is indicated on an adjacent label, which has a red (OFF) and green (ON) sector. In the red position the chart drive mechanism is unlocked for removal from the case.
4. Finger Grips	These allow easy gripping of the chart mechanism for removal from the case.
5. Chart Drive Roller	It engages the perforations along the edge of the chart paper and pulls the paper from the feed spool.

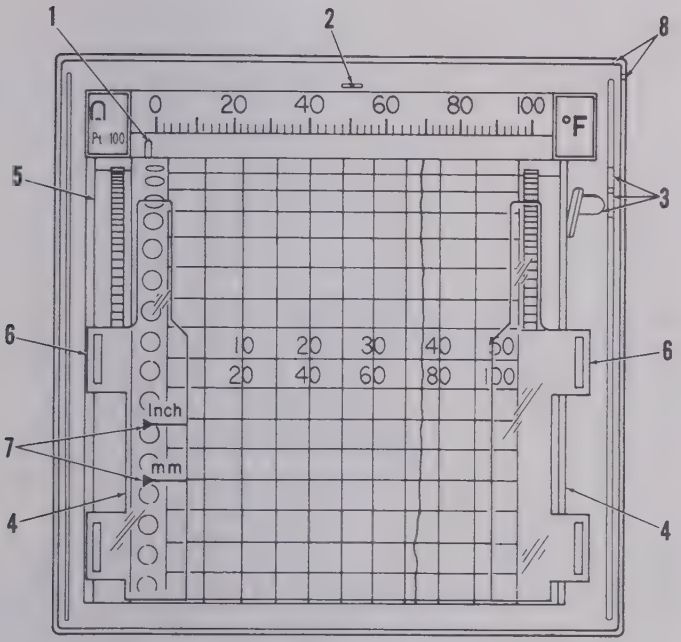

Figure 3-1. Front Window Removed

6. Chart Guides — These hold the paper in place on the chart panel and drive roller, and are hinged to open for paper installation and removal.

7. Time Marks — These marks are used to indicate recording time.

mm: — This mark is 60 mm from the recording (clamping) point.

Inch: — This mark is two inches from the recording (clamping) point.

8. Wire Seal Holes — These holes allow installation of a wire for locking the front window during a recording period.

NOTE: Item numbers 9 through 14 correspond with call-outs in Figure 3-2.

9. Feed Spool — New chart paper is installed on this spool. The chart drive roller (Figure 3-1, item 5) pulls the paper from this spool to the marking point (Figure 3-1), where the clamping bar clamps the pointer against the paper and causes an imprint at the point of contact.

10. Take-up Spool — This spool stores used chart paper (not shown).

11. Gear Change Level — This lever changes the chart drive gear ratio. The chart speed is increased 6 times when the lever is moved from the X1 to X6 position.

12. Gear Unit — This unit is a set of changeable gears for supplying the various specified and special chart speeds (refer to Table 1-1).

13. Retaining Screw — This screw is used for fastening the gear unit to the chart drive mechanism frame.

14. Guide Arm — This control is spring-loaded against the feed spool to prevent end-play. It also insures proper alignment and travel of the chart paper.

NOTE: Items 15, 16 and 17 correspond with call-outs in Figure 3-3.

15. Power Line Plug — This plug connects with the line cord supplied. It thereby connects line power to the power supply circuits, and to the chart drive motor via the on-off switch.

16. Measuring INPUTS Terminals — These terminals are used for connecting the INPUTS to the internal measurement circuits.

NOTE: The single channel model has only two terminals, while dual models have 10 terminals (not all are used).

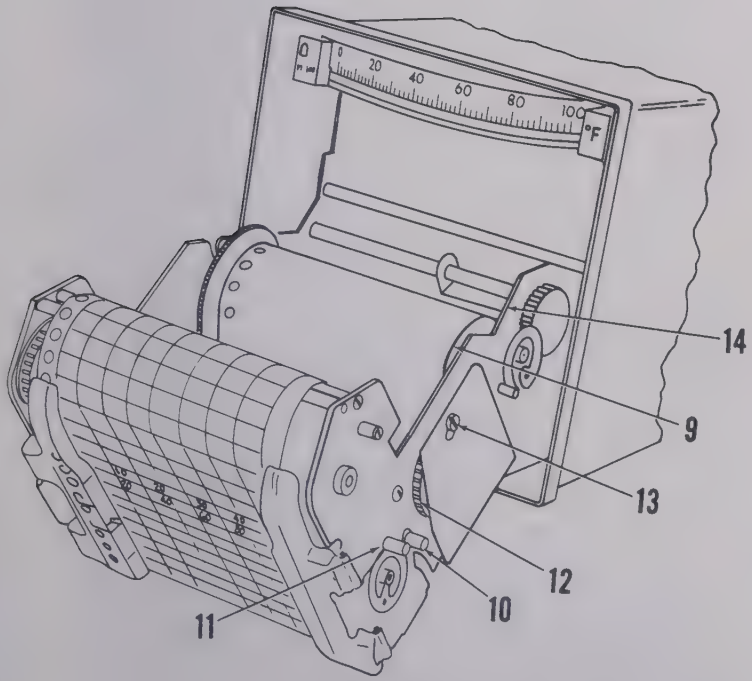

Figure 3-2. Chart Drive Mechanism Pulled Out and Tilted

17. Ground Screw Terminal (Fig. 3-3)

This terminal provides for electrically grounding the case with a separate wire to power line (earth) ground.

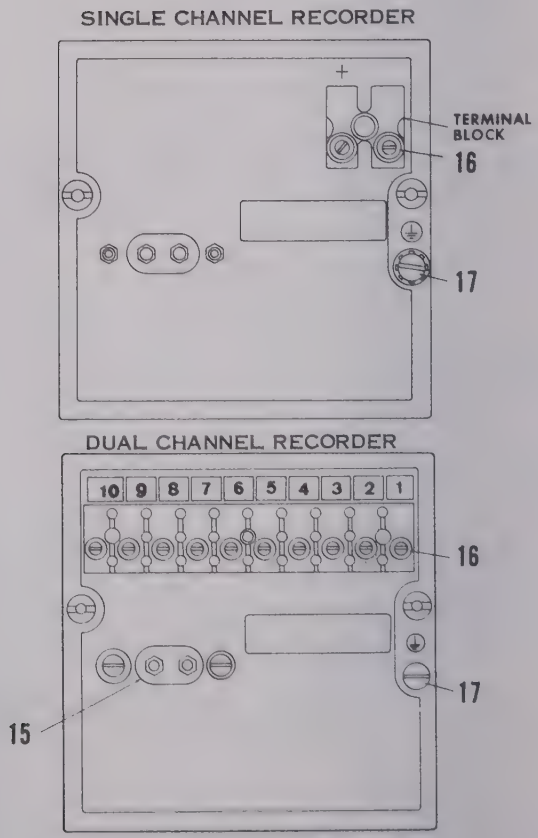

Figure 3-3. Rear Panels

SECTION IV

OPERATION

4.1 GENERAL

WARNING

The Model 2750 is designed to prevent accidental shock when properly used. However, no engineering design can render safe an Instrument which is used carelessly. Read this manual carefully and completely prior to making any measurements. Failure to do so can result in a serious or fatal accident.

This section of the manual contains all the information related to operation of the Instrument. Special notes and instructions have also been provided for added safety and convenience.

4.2 SAFETY PRECAUTIONS

4.2.1 The Model 2750 is intended for use by personnel qualified to recognize shock hazards and trained in the safety precautions required to avoid possible injury. Refer to SHOCK HAZARD definition on page vi.

WARNING

Ground the Instrument case before connecting to power line. This connection will be automatic if the electrical outlet is the 3-wire type (third wire grounded), conforming to the latest electrical code, and with the third wire (green) connected to ground terminal 17 (see Figure 3-3). If power comes from a 2-wire system and a 3-prong-to-2-prong adapter is used, make sure that the third wire (ground) from the adapter is connected to power line (earth) ground.

4.3 OPERATING NOTES AND INSTRUCTIONS

4.3.1 Opening and Closing the Front Cover

The internal controls and chart drive mechanism of the Model 2750 are accessible from the front of the Recorder by removing the cover. The cover is phenolic with a glass window held to the case by a spring catch. To remove, grasp the fluted edges firmly and pull out at the top. Lift slightly to disengage the cover from the case. To close, be sure to position the two tabs at the bottom of the cover into the corresponding holes in the case; then push the top of the cover in place to engage the spring catch. To prevent unauthorized opening, install a wire seal (refer to Table 3-1, item 8).

4.3.2 Control Lever Operation

With the front cover removed, the control lever can be operated. Refer to Table 3-1, item 3.

CAUTION

Prior to placing the control lever in the green position, make sure the chart drive mechanism is pushed completely into the case. Unnecessarily excessive force can cause damage to the recorder.

4.3.3 Chart Drive Unit (see Figure 3-2)

To install or replace the chart paper, or the gear unit, the chart drive mechanism must be pulled out approximately 2-1/4 inches from the case. Proceed as follows:

a. Remove the front cover (4.3.1).

b. Place the control lever in the red position (4.3.2).

c. Using the finger grips (refer to Table 3-1, item 4), pull the chart drive unit from the case until the stop engages (which limits the travel). The mechanism now can be tilted downward (see Figure 3-2).

d. To return the chart drive unit into the case, tilt up, and slide it back to its original position. Make sure the chart drive unit is pushed completely into the case; then, put the control lever in the green position.

4.3.4 Gear Unit Exchange (Chart Speed Selection)

To remove and replace the existing gear unit (refer to Table 3-1, item 12), proceed as follows:

a. Pull the chart drive unit out from the case (4.3.3).

b. Loosen the retaining screw (Fig. 3-2, item 13).

c. Slide the gear unit up, tilt out at the top (to disengage the gears), and remove.

d. To install the new gear unit, line up two slots and hole in the gear unit with the corresponding pins and screw on the chart drive unit frame.

e. Lock the gear unit in place by tightening the retaining screw.

f. Set the gear change lever to the desired position.

g. Push the chart drive unit into the case (4.3.3) and place the control lever in the green position.

h. Replace the front cover (4.3.1).

4.3.5 Chart Paper Installation

Install the chart paper as follows:

a. Remove the front cover (4.3.1), and pull out chart drive unit per 4.3.3.

b. Remove the take-up spool:
   1. Grasp the spool with the fingers and pull forward and down until the spool slides out of the side slots.

c. Remove the used chart paper from the take-up spool:
   1. The take-up spool has a removable flange on the end (opposite the pinion gear end).
   2. Grasp the ends (flanges) of the take-up spool, one in each hand, and pull off the removable flange. Then slide the paper off the spool.
   3. Slide the used chart paper off the spool. Re-install the flange.

d. Remove the feed-spool:
   1. Tilt the front of the chart drive unit downward; hold in one hand while grasping the feed spool with the other.
   2. Slide the feed-spool upward and out of the side slots.

e. Remove the unused chart paper (or the empty cardboard tube) from the feed-spool.

f. Slide the new chart roll (perforated edge first) onto the feed-spool, flush against the fixed flange.

g. Re-install the feed-spool (reverse procedure used for removal, 4.3.5d), checking that the perforations are on the left side as viewed from front.

NOTE: Hold the guide arm (Figure 3-2, item 14) out-of-the-way to facilitate end-pin/side-slot alignment.

h. Pull out about eight inches of paper from the feed-spool. Cut the end to a tapered point (see Figure 4-1).

i. With chart guides (Figure 3-1, item 6) open, route chart paper over the roller rods, down the front of chart drive unit. Align the perforations in chart paper to engage the chart drive roller.

j. Insert the pointed end of the chart paper into the slot on the body of the take-up spool. The perforated edge of the chart paper must be next to the fixed flange (with the pinion gear). Wind a few turns (direction indicated by arrow on removable flange) on the spool to insure that the chart paper is engaged positively with the spool.

k. Re-install the take-up spool into its original position (reverse procedure for removal, 4.3.5), making certain that both circular nylon springs are engaged properly with the end pins of the spool, and that the pins are in their retaining notches. Make sure the end with the pinion gear is on the left side, as viewed from the front of the chart drive unit.

l. Close the chart guides, tilt the chart drive unit up and slide into the case.

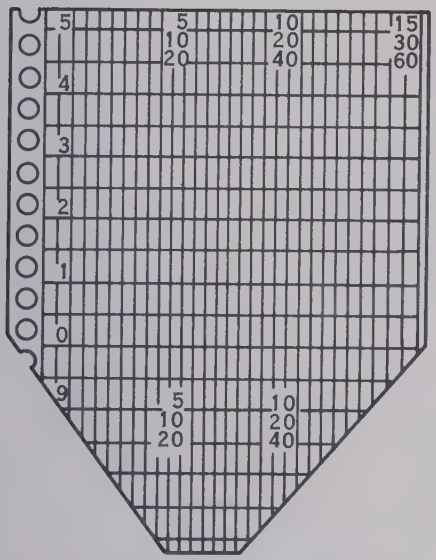

Figure 4-1. Chart Paper Cut to Tapered Point

m. Push the on-off control lever down to the green position (Figure 3-1, item 3).

n. Replace the cover (4.3.1).

4.3.6 Reading the Chart Time Base

The Model 2750 has four basic speeds. The chart paper time base can be read as follows:

NOTE: When the gear change lever is in the X6 position, all speeds are multiplied by 6 and time indicated on the charts must be divided by 6.

a. The 20 mm/hour paper is marked from 1 through 24, with a 20 mm space between each number. This 20 mm space is divided into four subdivisions of 5 mm each; representing 15-minute intervals.

b. The 30 mm/hour paper also is marked from 1 through 24, with the distance between each number equal to 30 mm. The 30 mm is divided into six sub-divisions of 5 mm each, representing 10-minute intervals.

c. The 60 mm/hour paper is marked from 1 through 24. with the distance between each number equal to 60 mm. The 60 mm is divided into three sub-divisions of 20 mm each, representing 20-minute intervals. The 20 and 40 minute points are marked with "20" and "40". The 20 mm sub-divisions are further divided into four sub-divisions representing 5 minutes each.

d. The 100 mm/hour paper is marked from 0 through 9 with the distance between each number equal to 10 mm. The 10 mm (represents 1/10 hour or 6 minutes) is divided into two 5 mm spaces, each representing a 3-minute interval. See Figure 4-8.

4.3.7 Adjustment of Time Scale on Chart

On the Model 2750, recording (marking) occurs at the clamping bar, and is not visible from the front of the recorder. To watch the recording time from the front, reference lines have been placed on the left chart guide and labeled "mm" and "inch" (refer to Table 3-1, item 7). These are spaced 60 mm and 2 inches, respectively, from the recording point. Each represents a time determined by chart speed (4.3.6). The exact recording period can be monitored by reading the time shown at the reference line and subtracting a time interval equivalent to either 60 mm or 2 inches of chart paper travel.

4.3.8 Line Cord Installation

WARNING

For portable operation, it is imperative that earth grounding be made by a pig-tail connection to the Instrument's GROUND terminal.

Install the line cord into the recessed power cord plug (refer to Table 3-1, item 15) on the rear panel, and connect the green lead to the ground terminal (Figure 3-3, item 17) on the case.

4.3.9 Mechanical Adjustment of Pointer

NOTE: This adjustment does not apply to suppressed zero; i.e., off-scale instruments. The pointer must be aligned (zeroed) with the extreme left-end mark of the recorder scale (refer to Table 3-1, item 1) before measurements are made. Proceed as follows:

a. Connect the line cord to the power outlet.

b. Short the INPUT at the rear terminals.

c. Remove the front cover (4.3.1).

d. Lift up on the on-off control lever (item 3) and hold it in its maximum vertical position.

e. Move the Zero Adjust Lever (Figure 3-1, item 2) right or left, until the pointer is directly over the end mark at the extreme left end of the scale.

f. Pull the chart drive (4.3.3) and set the gear change to the X6 position.

g. Return the chart drive in the case and place the on-off control lever to the green position (Figure 3-1, item 3). Refer to paragraph 4.3.1.

h. Replace the front cover and run the recorder to see the trace of dots at the beginning of chart paper. If the pointer does not rest on zero mark, move the adjusting lever of the Instrument in the direction that will bring the dot sequence in line with chart paper zero line.

i. Disconnect the power and reset the gear to the desired position.

4.4 INITIAL CONNECTIONS AND CONTROL SETTINGS

Perform the following connections and control settings prior to making measurements.

a. Review paragraphs 4.2 and 4.3.

CAUTION

Do not overtighten the screws in carrying out the following step.

b. Determine which backplate terminals will be used for connecting the INPUTS. Loosen the screws on these terminals. Strip about 1/4 inch of insulation from the ends of the connecting leads. Insert the stripped end(s) into the bottom of the terminal, and tighten the screw(s) snugly. Make connections carefully without having exposed conductors, particularly when using as a portable instrument.

c. Select the chart speed to be used and the appropriate gear unit (4.3.4).

d. Install the chart paper (4.3.5) that matches the selected speed and range.

SECTION V

THEORY OF OPERATION

5.1 GENERAL

This section describes the theory of operation of the Model 2750 recorder. Figure 5-1 shows the overall block diagram of the Instrument.

5.2 OVERALL MEASUREMENT SYSTEM

5.2.1 The parameter being measured is connected to the input terminals, and the corresponding circuitry (when required) connects the parameter into an input which is applied to the meter movement.

5.2.2 The input into the meter movement causes the moving-coil assembly to deflect. This deflection may be observed visually with reference to the pointer and the printed scale.

5.2.3 The meter deflection also positions the pointer in the proper position over the recorder chart paper, to provide (after clamping) a recording of the measured parameter.

5.3 CHART PAPER SYSTEM

5.3.1 The chart paper is moved forward at a pre-selected speed, providing a time base for the measured parameter.

5.3.2 The chart paper is a pressure sensitive type; the sequential clamping of the pointer to the paper impresses the wax film on the paper. A black dot is produced, the successive black dots produce an apparently continuous line.

5.3.3 A motor supplies the mechanical input for two main functions; the chart paper drive and the clamping of the meter pointer. On dual channel recorders, the motor also provides the mechanical input for electrically switching the measured circuits from one input (channel A) to the other (channel B).

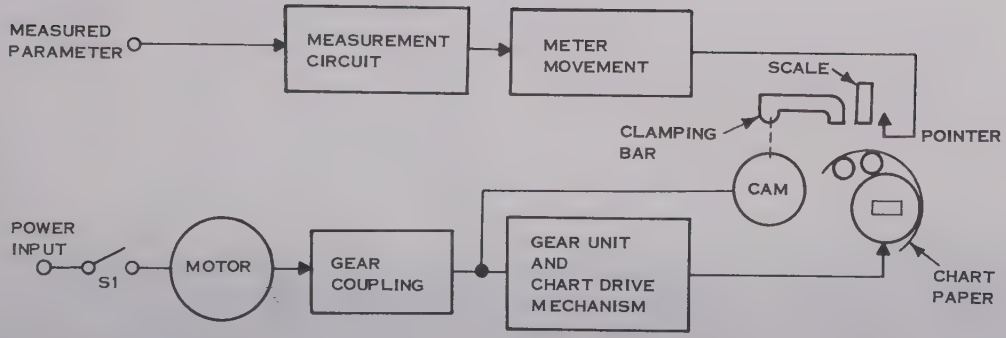

Figure 5-1. Model 2750, Basic System Diagram

SECTION VI

MAINTENANCE

6.1 GENERAL

WARNING

This Instrument contains internal voltages which constitute a SHOCK HAZARD. Do not operate the Instrument outside its case. Disassembly of the Instrument must be done only by Simpson Authorized Service Centers or factory personnel.

The Model 2750 has been designed carefully and constructed with high-quality components. By providing reasonable care, and following the instructions in this manual, the user can expect a long, useful service life.

6.2 WARRANTY

6.2.1 The Simpson Electric Company warranty policy is printed on the inside front cover of this manual. Read it carefully prior to requesting a warranty repair.

NOTE: For assistance of any kind, including help with the Instrument under warranty, contact your nearest Authorized Service Center for instructions. These Centers are listed on the last pages of the manual. If you wish to contact the factory directly, give full details of the difficulty and include the Instrument model number and date of purchase. Service data or shipping instructions will be sent to you promptly. There will be no charge for repair of the Instrument under warranty, beyond one-way transportation charges. Non-warranty service will be estimated and quoted for approval. If an estimate of charges for non-warranty or other service work is required, a maximum charge estimate will be quoted. This charge will not be exceeded without your prior approval.

6.3 PREVENTIVE MAINTENANCE

6.3.1 Daily Care:

a. Immediately clean all spilled materials from the Instrument and wipe dry. Do not attempt to clean this Instrument with the test leads connected to a power source or when it is connected to the AC power line.

b. Whenever possible, avoid prolonged exposure or usage in areas which are subject to: temperature and humidity extremes, vibration or mechanical shock, dust or corrosive fumes, or strong electrical or electromagnetic interferences.

6.3.2 Monthly Care:

Verify Instrument calibration by performing operational checks using known stable sources. If proper calibration equipment is not available, contact your nearest Simpson Authorized Service Center. Carefully remove from time to time any deposits of dust which fall from the chart paper onto the scale and the chopper bar. Use a soft brush.

6.3.3 Annual Care:

It is recommended that the Instrument be returned to the nearest Simpson Authorized Service Center or to the factory annually (sooner if required) for a complete overall check, adjustment and calibration.

6.3.4 Storage:

When the Instrument is not in use, store it in a room free from temperature extremes, dust and corrosive fumes, and mechanical vibration or shock.

6.3.5 Lubrication:

Every 1000 hours, sparingly lubricate the drive bearings with a light oil such as sewing machine oil.

SECTION VII

ORDERING INFORMATION AND AUTHORIZED SERVICE CENTERS

7.1 ITEMS SUPPLIED WITH ALL RECORDERS

Table 7-1 lists the items supplied with all the recorders.

Table 7-1. Items Supplied With Recorder

Item	Qty.	Description	Catalog No.
1	1	Gear Unit: 20/120 mm/hour (installed)	22300
2	1	Line Cord: Three wire with standard 3-prong plug, 60" long	22393
3	1	Front Window: Phenolic frame with glass	22396
4	2	Rolls of chart paper for the specific range and speed ordered (see paragraph 7-3)	

7.2 ACCESSORIES

Table 7-2 lists the accessories available for use with the Model 2750.

Table 7-2. List of Accessories

Item	Description	Catalog No.
1	Portable carrying handle	22392
2	Cover, Plastic, with knockout section at the bottom for paper feedout	22395
3	Line cord, 3-wire, with pigtail termination for connection to solder terminals, 60" long	22394
4	Panel Mounting Bracket	22391
5	Quick-change gear units:	
	mm/hour	
	20/120	22300
	30/180	22301
	60/360	22302
	100/600	22303

7.3 CHART PAPER

Specially formulated, hard-wax coating that will not fog or blur with age. Each roll is 50 feet long and 2.3 inches wide.

Table 7-3. Chart Paper

Speed Calibration (mm/hour)	Measured Value Calibration	Catalog Number	Price Per 10 Roll Box
20	30 divisions	22310	$18.00
20	30 divisions for ±15% Segmental Scale	22318	18.00
20	50 divisions	22311	18.00
30	30 divisions	22312	18.00
30	30 divisions for ±15% Segmental Scale	22319	18.00
30	50 divisions	22313	18.00
60	30 divisions	22314	18.00
60	50 divisions	22315	18.00
100	30 divisions	22316	18.00
100	50 divisions	22317	18.00

7.4 REPLACEMENT PARTS

Table 7-4. Replacement Parts List

Item	Part No.
Line Cord, 3-wire with standard 3-prong plug, 60" long	22393
Front Window, Phenolic frame with glass	22396
Panel, mounting bracket	22391

7.5 SPECIAL OPTIONS (FACTORY INSTALLED)

Table 7-5 lists the special options available for the Model 2750.

Table 7-5. Special Options

Item	Part No.
2 to 3 volt DC motor rated life of 5,000 hours	G0-00017
90 to 160 volt AC motor with rated life of 25,000 hours	G0-00018
Remote Print Command	*
3-wire input for long leads	*
Special Input Calibration for non-standard external	*
Lead Resistances	*
Special Ranges	*
Dual Channels	*
Amplifier for use with small span ranges	*

*Recorders with options are ordered by description and Model Number. For example, "Recorder, with Remote Print command and 3-wire input for long leads, Model 2750". Contact your Simpson Representative for complete details.

AUTHORIZED SERVICE CENTERS

SIMPSON ELECTRIC COMPANY

853 Dundee Avenue, Elgin, Illinois 60120 — Phone: (312) 697-2260

★ Parts Sales & Repair Service Only

★★ Parts, General Test Equipment & Panel Instrument Sales & Service

★★★ Same Service As (★★) Above Plus Panel Instrument Modification

★★★☐ Additionally Authorized for Service on Recorders, Controllers, Digital Products and Lab Portables

★★★ALABAMA, MOBILE 36617
☐ BROWNELL-ELECTRO INC.
3450 Armour Drive
Tel. 205/479-8581

★ALASKA, ANCHORAGE 99501
YUKON RADIO SUPPLY, INC.
3222 Commercial Drive
P.O. Box 406
Tel. 907/277-1497

★ALASKA, ANCHORAGE 99500
R. M. ZOOK & ASSOCIATES
1710 E. 27th Avenue
Tel. 907/272-6917

★ALASKA, FAIRBANKS 99701
YUKON RADIO SUPPLY, INC.
1112 Cushman Street
Tel. 907/452-1011

★★★ARIZONA, PHOENIX 85040
☐ METERMASTER INC.
4134 E. Wood Street
Tel. 602/243-4111

★★CALIFORNIA, LOS ANGELES 90040
☐ E.I.L. INSTRUMENTS INC.
6212 Peachtree St.
Tel. 213/685-7020

★★★CALIFORNIA, GLENDALE 91201
☐ WEATHERFORD INSTRUMENT DIV.
WESTERN ELECTRONIC SUPPLY CORP.
640 Allen Street
Tel. 213/246-4861

★★★CALIFORNIA, LOS ANGELES 90040
☐ METERMASTER, INC.
5646 Jillson Street
Tel. 213/685-4340

★★★CALIFORNIA, PALO ALTO 94303
☐ METERMASTER, INC.
3995 E. Bayshore Road
Tel. 415/968-0313

★★★CALIFORNIA, SAN DIEGO 92123
☐ METERMASTER/SAN DIEGO
8799 Balboa Avenue
Tel. 714/560-4841

★★★CALIFORNIA, SAN FRANCISCO 94105
PACIFIC ELECTRICAL
INSTRUMENT LAB
150 Folsom
Tel. 415/543-3104

★★★CALIFORNIA, SANTA CLARA 95050
☐ FISHER-BROWNELL
3381 Edward Avenue
Tel. 408/988-6041

★★★CALIFORNIA, SOUTH PASADENA 91030
☐ ETALON COMPANY
1323 Huntington Drive
Tel. 213/257-5410

★★★COLORADO, DENVER 80223
☐ METER MASTER INSTRUMENT
CORPORATION
1165 S. Cherokee
Tel. 303/722-5766

★★★CONNECTICUT, MIDDLETOWN 06457
☐ THE MANCIB COMPANY
Subsidiary of E.I.L. Instruments
Randolph Road and Coe
Tel. 203/346-6646

★★★FLORIDA, HIALEAH 33014
☐ KIMBALL ELECTRONIC LAB., INC.
8060 W. 20th Avenue
Tel. 305/635-9712

★★FLORIDA, MIAMI 33136
FLORIDA PRECISION INSTRUMENT
COMPANY
800 N.W. 7th Avenue
Tel. 305/324-1781

★★★FLORIDA, ORLANDO 32806
☐ BROWNELL-ELECTRO INC.
307 27th St., Box 8945
Tel. 305/843-6775

★★FLORIDA, TAMPA 33614
TAMPA INSTRUMENTATION CENTER
A.C. FERNANDEZ ELECTRIC
4807 N. Church Avenue
Tel. 813/870-0183

★★★GEORGIA, ATLANTA 30354
☐ BROWNELL-ELECTRO INC.
3020 Commerce Way
Tel. 404/762-5181

★★HAWAII, HONOLULU 96819
EMC CORPORATION
2979 Ualena Street
Tel. 808/847-1138

★★★**NORTH CAROLINA, RALEIGH 27612**
☐ INSTRUMENT TECHNICAL REP.
Rt. 8 — Box 115-C1
Umstead Industrial Park
Tel. 919/781-5256

★★★**OHIO, CLEVELAND 44105**
☐ PIONEER/INSTRUMENTATION
INSTRUMENT LABORATORY
Div. of Pioneer-Standard Electronics, Inc.
4800 East 131st Street
Tel. 216/587-3600

★★★**OHIO, CLEVELAND 44135**
☐ WESCHLER ELECTRIC CORP.
16900 Foltz Parkway
Tel. 216/238-2550

★★**OHIO, COLUMBUS 43229**
CONTRONICS, INC.
835 Busch Court
Tel. 614/846-5930

★★★**OHIO, DAYTON 45404**
☐ PIONEER/DAYTON
Div. of Pioneer-Standard Electronics, Inc.
1900 Troy Street
Tel. 513/236-9900

★**OKLAHOMA, OKLAHOMA CITY 73107**
HUSTON LABORATORIES, INC.
536 No. Pennsylvania
Tel. 405/235-5469

★**OKLAHOMA, TULSA 74120**
AGRA ENGINEERING COMPANY
551 S. Quaker Avenue
Tel. 918/584-4235

★★★**OREGON, PORTLAND 97217**
☐ WESTCON, INC.
5101 N. Interstate
Tel. 503/283-0132

★★★**PENNSYLVANIA, PHILADELPHIA 19115**
☐ SUNSHINE SCIENTIFIC
INSTRUMENTS INC.
1810 Grant Avenue
Tel. 215/673-5600

★★★**PENNSYLVANIA, PITTSBURGH 15238**
CAM/RPC
620 Alpha Drive RIDC Pk.
Tel. 412/782-3770

★★★**PENNSYLVANIA, PITTSBURGH 15221**
☐ E.I.L. INSTRUMENTS, INC.
1844 Ardmore Blvd.
Tel. 412/731-5230

★★★**TENNESSEE, MEMPHIS 38116**
☐ BROWNELL-ELECTRO INC.
3053 Tranquility Drive
Tel. 901/332-9258

★★**TENNESSEE, MEMPHIS 38104**
INSTRUMENT REPAIR SERVICE
468 N. Watkins
Tel. 901/278-0762

★★★**TENNESSEE, NASHVILLE 37210**
☐ BROWNELL-ELECTRO INC.
1050 Acorn Drive
Tel. 615/889-8230

★★★**TEXAS, DALLAS 75220**
☐ ULTRA INSTRUMENT LAB., INC.
9995 Monroe
Tel. 214/357-0297

★★★**TEXAS, EL PASO 79901**
BORDER ELECTRONICS
1704 E. Paisano Drive
Tel. 915/532-2524

★★★**TEXAS, GARLAND 75040**
METERMASTER, INC.
2809 National Drive
Tel. 214/271-5671

★★★**TEXAS, HOUSTON 77006**
☐ ELECTRICAL INSTRUMENT METER
COMPANY (EIMCO)
1424 Westheimer
Tel. 713/526-6871 & 72

★★★**TEXAS, HOUSTON 77023**
☐ METERS & INSTRUMENTS CORP.
6428 Gulf Freeway
Tel. 713/644-1631

★★**TEXAS, ODESSA 79760**
METER SERVICE & SUPPLY
2127 Kermit Highway
P.O. Box 2373
Tel. 915/332-0565

★★★**TEXAS, ODESSA 79760**
☐ WHITLOCK INSTRUMENT
1306 North Texas
Tel. 915/337-3412

★★★**VIRGINIA, ALEXANDRIA 22312**
☐ E.I.L. INSTRUMENTS, INC.
5400 Cherokee Avenue
Tel. 703/354-4330

★★★**VIRGINIA, CHESAPEAKE 23325**
☐ INSTRUMENT TECHNICAL REP.
1835 Lockhard Street
Tel. 804/424-5121

★★★**VIRGINIA, RICHMOND 23234†**

★★★**VIRGINIA, CHESTERFIELD 23831††**
☐ INSTRUMENT TECHNICAL
REPRESENTATIVES
7400 White Pine Road
Tel. 804/275-1431

★★★**WASHINGTON, SEATTLE 98105**
☐ EICHER-RICHARDS COMPANY
2727 N.E. Blakeley Street
Tel. 206/523-7888

★★★**WASHINGTON, SEATTLE 98108**
E.I.L. INSTRUMENTS, INC.
1312 S. 96th Street
Tel. 206/762-0880

★★**WASHINGTON, SPOKANE 99202**
BLACKS-INDUSTRIAL INC.
N. 401 Helena
P.O. Box 3286
Tel. 509/535-1504

★★★**WISCONSIN, MILWAUKEE 53202**
THE ELECTRO MECHANO COMPANY
241 East Erie Street
Tel. 414/272-4050

★★**WYOMING, LANDER 82520**
METER SPECIALISTS, INC.
P.O. Box 595 (MAIL)
Hiway 287 West (UPS)
Tel. 307/332-9711

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† *Regular Mail Delivery*
†† *UPS Delivery*

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KEMS INCORPORATED
239 Puuhale Road
Tel. 808/847-1395

★★★ILLINOIS, BRIDGEVIEW 60455
E.I.L. INSTRUMENTS, INC.
9708 Industrial Drive
Tel. 312/430-2292

★★★ILLINOIS, ELK GROVE VILLAGE 60007
METERMASTER, INC.
121 Gordon Street
Tel. 312/593-8650

★★★ILLINOIS, OAK PARK 60302
PACIFIC INDICATOR COMPANY
6603 W. North Avenue
Tel. 312/261-1330

★★★INDIANA, EVANSVILLE
☐ ELECTRO-LAB SERVICES INC.
1302 N. Fulton 47710 (UPS)
P.O. Box 6011 47712 (MAIL)
Tel. 812/423-5211

★★KANSAS, OVERLAND PARK 66206
BROOKS ELECTRONICS INC.
3761 W. 95th Street
Tel. 913/648-3131

★★★KANSAS, WICHITA 67211
☐ MAIN ELECTRONICS INC.
225 Ida
Tel. 316/267-3581

★★★LOUISIANA, HARAHAN 70123
☐ INDUSTRIAL INSTRUMENT WORKS
134 Laitram Lane
Tel. 504/733-8355

★★★MARYLAND, ELKRIDGE 21227
☐ SUNSHINE SCIENTIFIC INSTRUMENTS, INC.
5800 Main Street
Tel. 301/796-5600

★★★MARYLAND, GAITHERSBURG 20760
☐ PIONEER/INSTRUMENTATION
Div. of Pioneer Standard Electronics Inc.
9100 Gaither Road
Tel. 301/948-0710

★★★MARYLAND, SAVAGE 20863
☐ INSTRUMENT SPECIALTIES INC.
Div. of Pyttronic Ind.
8220 Wellmoor Court
Tel. 301/792-0780

★★★MARYLAND, TIMONIUM 21093
☐ E.I.L. INSTRUMENTS, INC.
1830 York Road
Tel. 301/252-1260

★★MASSACHUSETTS, BILLERICA 01821
METERMASTER, INC.
13 Fortune Drive
Tel. 617/667-8346

★★★MASSACHUSETTS, BURLINGTON 01803
☐ THE MANCIB COMPANY
Subsidiary of E.I.L. Instruments Inc.
21 "A" Street
Tel. 617/272-9450

★★★MICHIGAN, FERNDALE 48220
☐ RAM METER, INC.
1100 Hilton Road
Tel. 313/398-6767

★★★MINNESOTA, MINNEAPOLIS 55427
☐ INSTRUMENTATION SERVICES INC.
957 Winnetka Avenue North
Tel. 612/544-8916

★★★MISSOURI, ST. LOUIS 63108
☐ INDUSTRIAL SERVICE LABORATORIES CORP.
4354 Olive Street
Tel. 314/535-5760

★★★MISSOURI, ST. LOUIS 63143
☐ SCHERRER INSTRUMENTS INC.
7170 Manchester
Tel. 314/644-5362

★★MONTANA, BILLINGS 59102
INDUSTRIAL ELECTRONICS & AUTOMATION COMPANY
2500 Grand Avenue
Tel. 406/656-1313

★★NEBRASKA, LINCOLN 68508
ELECTROMETRICS COMPANY
404 South 11th
Tel. 402/477-3434

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MARSHALL INSTRUMENTS INC.
236 Washington Avenue
Tel. 201/751-1190

★★★NEW JERSEY, SOUTH PLAINFIELD 07080
BROWNELL-ELECTRO INC.
500 Hadley Road
Tel. 201/753-4600

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☐ MISSOURI RESEARCH LAB, INC.
630 Haines Avenue NW
Tel. 505/243-6772

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MOHAWK COMMUNICATIONS
3500 Bleachery Place
Tel. 315/737-7328

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MOHAWK COMMUNICATIONS
3500 Bleachery Pl.
Tel. 315/737-7328

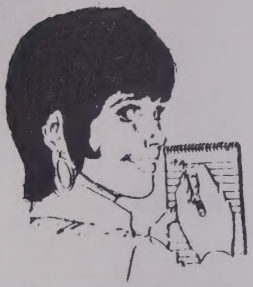
★★★NEW YORK, CLARENCE 14031
☐ TROTT ELECTRONICS INC.
9020 Wehrle Drive
Tel. 716/634-8500

★★★NEW YORK, NEW YORK 10011
BROWNELL-ELECTRO INC.
85 Tenth Avenue
Tel. 212/924-6000

★★★NEW YORK, NEW YORK 10011
☐ NILSSON ELECTRICAL LABORATORY, INC.
111 8th Avenue — Rm. 1525
Tel. 212/675-7944

★★★NEW YORK, ROCHESTER
☐ ELECTRONIC INSTRUMENT COMPANY
325 Mt. Read Blvd.
Tel. 716/328-4350

★★★NORTH CAROLINA, CHARLOTTE 28216
☐ BROWNELL-ELECTRO INC.
5141 Belhaven Blvd.
Box #16368
Tel. 704/394-4341



NOTES

FOR THE RECORD

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*Date Purchased*_____

*Purchased From:*_____

*Identification Number:*_____

_____

Date	*Type of Service*	*Serviced By*
____	_____	_____
____	_____	_____
____	_____	_____
____	_____	_____
____	_____	_____
____	_____	_____
____	_____	_____

NOTES

FOR THE RECORD

Date Purchased 7-82

Purchased From: _____

Identification Number: _____

Date	*Type of Service*	*Serviced By*

Quality is the indispensable component of every Simpson instrument . . . . . .